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ABSTRACT

This study examined the effect of formal instruction on the acquisition of three grammatical structures (simple past tense, present perfect, and passive construction) by Chinese adolescent learners of English. Comparison focused on the effects of two methods: explicit formal and implicit formal instruction. In the explicit method, students are required to work out and articulate grammatical properties and rules if they can. The teacher provides explanations of the properties and rules with metalanguage within the students' grasp. In the implicit method of instruction, learners are guided to make generalizations on their own. No explanations are given. Overall results appear to support the conclusion that form-based classroom instruction facilitates second language acquisition, but do not suggest that explicit instruction is always a better means to accelerate acquisition. It is more effective in teaching less complex properties and structures. In respect to the more complex properties, such as the semantic meanings of the present perfect, explicit instruction is effective with simple rules but not so effective with complex ones. Results of the study appear to be in favor of the interface position, but because of the small sample size and limited number (of test items, no conclusion can yet be drawn. (VWL)

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The Effect of Explicit Instruction on the Acquisition of English Grammatical Structures by Chinese Learners¹

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1. INTRODUCTION

The role of formal instruction in second language acquisition (hereinafter SLA) research has long been a controversial issue. Research findings from morpheme and "relative utility" studies have led to a conflict of opinion among second language acquisition researchers and teaching professionals on the question: whether there is any need to teach grammar. Some hold that given a "natural order" in acquisition, grammatical teaching is unnecessary (Terrel 1981, Higgs and Ciffoort 1983, Krashen 1981, 1982). Others argue that even if formal instruction does not affect the route of SLA, it has some effect on the learning rate. In other words, raising learners' consciousness of grammatical properties may accelerate SLA. In the second language classroom, learners should be made aware of the grammatical properties of the target language (Sharwood Smith 1981, Rutherford 1987).

Out of this debate grew two conflicting theories. The monitor theory postulated by Krashen advocates that there is no interface between explicit and implicit knowledge; according to him, learning is independent of acquisition. Protagonists of the interface position represented by Bialystok, Sharwood Smith, McLaughlin argue, however, that there is an interface between explicit and implicit knowledge. One can be converted into the other by dint of practice. The teacher's task, therefore, is to sensitize the learner to specific linguistic properties and provide opportunities for them to practice the learnt properties.

Empirical studies have been carried out in the past decades in an attempt to find evidence in support of formal instruction. Due to the methodological problems in their research design, the findings from these studies are ambiguous. While some are in favour of formal instruction, some show negative effects; others do not offer clear results. The ambiguity had something to do with research method applied. Three problems will be identified:

- 1) Some of the studies do not measure the absolute effect of formal instruction on the acquisition of specific grammatical properties, but examine the "relative utility" of formal instruction.

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Long (1983) presents a comprehensive review of the relevant studies on the effect of formal instruction. These studies investigated the effect of formal instruction on the L2 proficiency in relation to the effect of simple exposure to the L2 learner in naturalistic settings. The problem is that most of the investigations were carried out in acquisition-rich environments where English is the target language. In such environments, learners had access to L2 through both formal instruction and natural exposure. Therefore, when analyzing the results, it is difficult to separate the effects of instruction and exposure.

ii) The second problem is that some of the studies looked at the combination effect of several features of formal instruction rather than a single feature.

Take Von Elek and Oskarsson's experiment (1972) for example. In their study, five grammatical properties were taught in the experimental lesson series. 125 adult learners of English were assigned to two groups and treated with explicit and implicit methods respectively. The results revealed that after 40 hours of instruction, both groups made some progress in the acquisition of the structures. But the explicit group made better progress than the implicit group. They concluded then the explicit method was more effective than the implicit method. However, the two methods adopted in their study differed not only in the feature of explicitness but also in other features such as the deductive/inductive presentation of the rules and different exercise types: pattern drills vs. fill-in-the-blanks and translation task. When interpreting the data, it is difficult to identify which feature is the decisive factor that contributes to a better progress in learning.

iii) The third problem is related to the duration of the experiment.

To the best of our knowledge, the only small-scale, feature-focused research, which was carried out by Seliger (1975), evaluates the inductive and deductive methods with regard to one aspect of syntax, i.e. the pre-nominal modifiers. The only difference between the two methods had to do with the point at which explanation was given in the lesson. Seliger observed that the deductive method was superior to the inductive method in respect to long term retention. But in this study, instruction took place for too short a period of time (only 65 minutes). No broad generalization can be drawn from a single limited-duration study such as this.

It should also be noted that the majority of the studies on the effect of formal instruction have not been framed in terms of the theoretical notion of the interface position. Only two empirical studies related the findings to the interface debate (Van Baalen 1983, Ellis 1984). The

findings from Van Baalen's study was in favor of the interface position: the explicit group outperformed the implicit group on the easy rules in spontaneous language production, lending support to the argument that explicit knowledge can be converted into implicit knowledge. Ellis' study confirms neither the interface nor the non-interface position, although some of the findings were compatible with Krashen's theory. Ellis maintains that more studies should be carried out before either the interface or the non-interface position can be confirmed.

From the above discussion, we can see that in order to gain a clearer picture on the effects of various kinds of formal instruction, more empirical studies should be carried out. These studies should incorporate the following characteristics: (a) The experiment should be done in an acquisition-poor setting where learners have no target language exposure outside the classroom. (b) It should focus on one feature of formal instruction. (c) The formal instruction given to the students should last a reasonable period of time.

The present study represents an attempt to examine the absolute effect of formal instruction on SLA. The experiment has tried to incorporate the three features mentioned above: it was conducted in one of the middle schools in Shanghai, China, an acquisition-poor setting. It took place over a period of three weeks. It focused on just one feature: the explicitness of formal instruction.

2. PURPOSE OF THE STUDY

The main objective of the present study was twofold: first, to investigate the role of formal instruction in SLA by comparing the effects of two methods, explicit formal instruction and implicit formal instruction, on Chinese adolescent learners of English. In this study, formal instruction denotes the kind of instruction that draws learners' attention to the formal characteristics of the grammatical features. Explicit formal instruction is defined as the method in which learners are required to work out and articulate the grammatical properties and rules if they can. The teacher provides explanations of the properties and rules with metalanguage within the students' grasp (mainly in their native language). Implicit formal instruction refers to the method whereby the learners are guided to make generalizations on their own. No explanations of the properties and rules are given. These two methods were compared with respect to the learners' acquisition of the three areas of grammar: the simple past tense, the present perfect and the passive construction. The second objective of the study was to ascertain if there existed an interface between explicit knowledge and implicit knowledge. The research hypotheses for the experimental survey were:

- 1) Formal instruction in general is conducive to the success of SLA. It helps L2 learners to improve their

proficiency in the production of well-formed sentences in different learning tasks.

2) Explicit formal instruction is more effective than implicit formal instruction in accelerating the rate of SLA. The EFI group will make better progress than the IFI group in the performance of different tasks.

3) There is an interface between explicit and implicit knowledge. Through formal and functional practice, explicit knowledge can be converted into implicit knowledge.

3. THE DESIGN OF THE STUDY

3.1 The subjects

The sample used in this research consisted of forty grade 8 students in Beihai Middle School in Shanghai. All of them volunteered to take part in this ESL program. Table 1 presents the characteristics of the sample.

Table 1. Characteristics of the Subjects

Number of subjects:	40
Number of schools:	1
Secondary level:	2
Age range:	14-15
Sex: Male	16
Female	24
Motivation:	high
Target language exposure:	classroom only

These subjects were randomly assigned to the two treatment groups on the basis of prior English proficiency level as reflected by their (a) test score on a cloze test, (b) average academic score, (c) pre-test score. One group received explicit formal instruction (EFI), the other received implicit formal instruction (IFI).

Table two provides data for a comparison of the two treatment groups with regard to their prior proficiency in English.

Table 2 Comparison of the Initial Proficiency in English Between the Two Treatment Groups

TEST	Treatment Group						
	EFI			IFI			2-tail Prob
	N	\bar{X} (%)	S	N	\bar{X} (%)	S	
Pre-test	20	33.73	0.065	20	34.93	0.055	0.543
Cloze test	20	69.04	0.187	20	70.71	0.156	0.581
Academic score	20	90.16	0.082	20	90.12	0.103	0.354
Total		192.93			194.76		

As can be seen, there was no significant difference between the two groups in respect to their prior English proficiency. In terms of the total raw scores, the IFI group was slightly superior to the EFI group.

3.2 The experimental lesson series

The experimental lesson series consisted of eighteen 50-minute experimental lessons per method. In order not to interfere with the regular course, all the lessons were conducted after normal classes (from 3.00-5.00 p.m.). The investigator taught both EFI and IFI groups. Each group had two periods of classes on alternate days in which 11 grammatical properties of the three structures were taught. The distribution of the 11 properties of the three structures are presented in Figure 1:

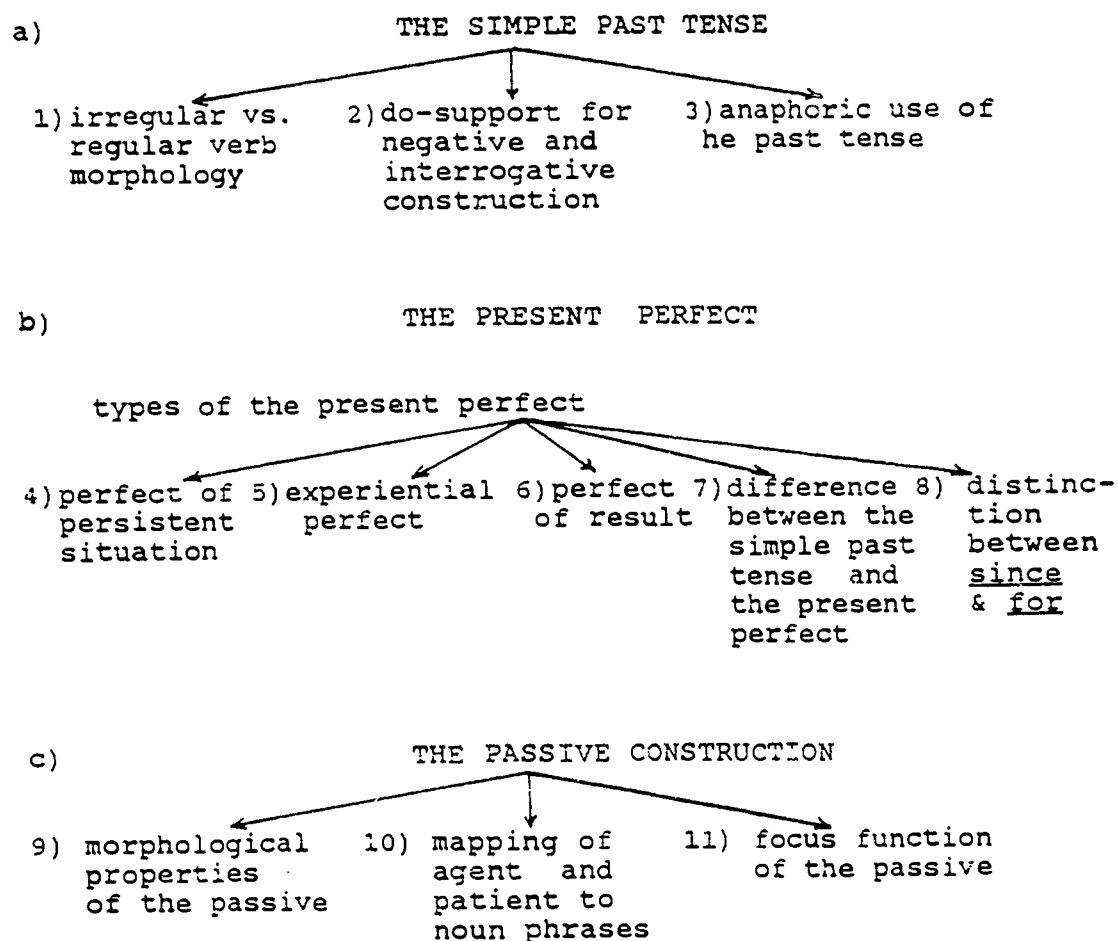


Figure 1. Distribution of 11 Grammatical Properties

These properties were selected according to the following principles:

a) They should be easy enough for the students at this level to learn (The low scores of the pre-test and the relative high scores of the post-test suggest that the choice of the structures was appropriate (see Table 9)).

b) They should be structures that present special difficulties to Chinese learners and were found to be sources of errors in the classroom, presumably because of syntactic differences between the two languages.

c) They should not have been dealt with in the regular course and were unknown to the subjects.

Since the selected three structures are not equally complex, the proportion of time devoted to each structure varied. The schedule of all experimental activities is given in Table three:

Table 3. Schedule of Experimental Activities

Weeks	Days	Experimental Activity
I	Friday	cloze test & pre-test (part A)
	Saturday	pre-test (part B, C)
II	Monday & Wednesday	the past tense (IFI group)
	Tuesday & Thursday	the past tense (EFI group)
	Friday	the present perfect tense (IFI group)
	Saturday	the present perfect tense (EFI group)
III	Monday, Wednesday and Friday	the present perfect tense (IFI group)
	Tuesday, Thursday and Saturday	the present perfect tense (EFI group)
IV	Monday, Wednesday and Friday	the passive voice (IFI group)
	Tuesday, Thursday and Saturday	the passive voice (EFI group)
V	Monday	post-test (part A)
	Tuesday	post-test (part B, C)

3.3 Methods compared

The two methods adopted in this study had much in common in terms of teaching techniques. The only

difference between the two was related to the degree of explicitness in the explanation of the grammatical features. Figure 2 summarizes the classroom activities carried out in the two groups.

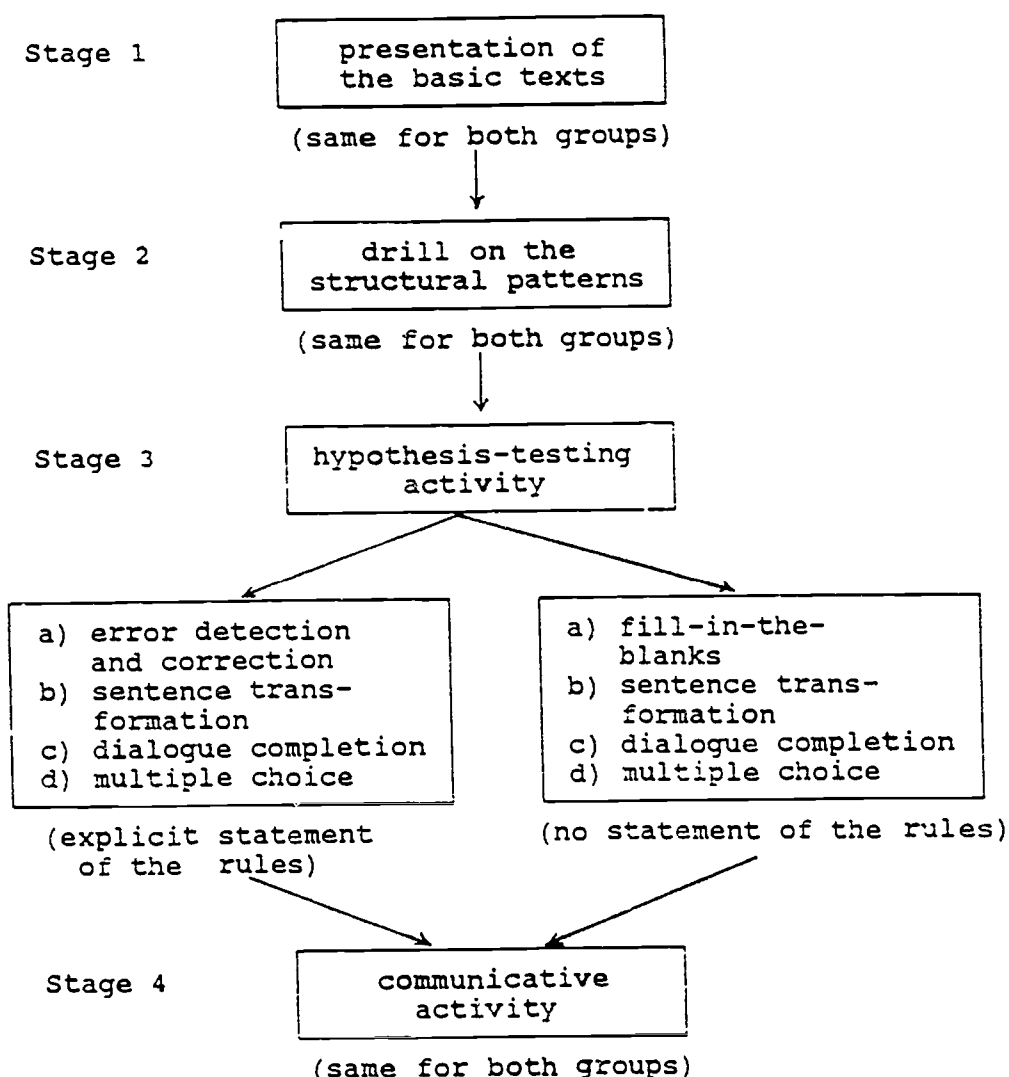


Figure 2. Teaching and Learning Activities in the Classroom

It can be seen that in the first, second and fourth stages, the two groups performed the same activities. In the third stage, however, four types of hypothesis-testing activities were assigned to each group three of which were the same (dialogue completion, sentence transformation, multiple choice). But the error detection and correction activity was only performed by the EFI

group; the IFI group had the fill-in-the-blank exercise. It should be mentioned that although the exercise type differed, the contents of the exercise were exactly the same. That is to say, the same grammatical properties were practiced. The assignment of the different tasks to different groups was dictated by the principle that in the IFI group, grammar should be taught in an implicit/covert way, while in the EFI group, the learners should learn the grammar explicitly/overtly. The grammatical information should be openly presented and explicitly explained. Therefore, the learners in the EFI group were directly exposed to grammatical errors. It was assumed that by drawing the learner's attention to such erroneous sentences, their consciousness of the grammatical properties would be better raised. This also accords with Rutherford's (1987) postulation that one of the instruments to raise learners' consciousness of aspects of the grammatical system could be error identification and correction.

In accordance with the principle set forth for the experiment, the learners in the EFI group were asked to articulate the regularities they had discovered; the teacher explained the rules when necessary. In the IFI group, no rule statement was given.

Two versions of a workbook comprising 18 worksheets were compiled, one for each group. Most of the texts and exercises were selected from "PROJECT ENGLISH" volume II written by Hutchinson (1986). The book was claimed to adopt an analytical approach in which learners were treated as thinkers who were guided to work out the rules themselves. This principle is identical with the principle we laid down for the experiment. This book, therefore, serves well the purpose of the present study. But we adapted the text to our experimental purpose, because each unit in the text contains far more exercises than can be covered in the experimental lesson. In order to control the teaching variable, the subjects were not allowed to bring the workbook home. There was no homework for them. The teacher collected the workbooks after class.

3.4 Measurement instruments and data analyses

To investigate the efficacy of the two methods with respect to the 11 grammatical features of the three structures, an achievement test battery was designed and used both as pre- and post-tests to measure the subjects' progress. It was a written test with 246 grammar items divided between 11 grammatical properties. The subjects were required to perform five tasks, namely, error detection, error correction, passage/dialogue completion, reading comprehension and spontaneous language production (see Appendix I-V, test samples). Table 4 presents the items of the achievement test:

Table 4. The Achievement Test

Tasks	Number of testing items	Properties tested
Error Detection	80	1 - 10 except 11
Error Correction	80	1 - 10 except 11
Sentence Completion	44	1 - 11
Reading Comprehension	14	7, 10
Spontaneous Production	28	3, 7, 11
Total: 5	246	11

In the error detection and correction tasks, 80 grammar items were tested, half of which were correct (eight for each property, except the function of the passive). The first part of the judgement task was composed of 20 sentences. The learners were not told which structure was being investigated, but they were told some sentences contained errors. In the second part of the judgement test, some of the verbal forms were underlined and numbered. The learners were asked to make judgements about the acceptance of the sentences first and then make corrections if necessary.

The third task was an ordinary sentence completion test with 44 grammar items, four for each property. The learners were required to answer the questions with the information given or fill in the blanks with proper verb forms (see Appendix I and II).

The reading comprehension test was specially designed to examine the subjects' understanding of the temporal and aspectual properties of the simple past tense and the present perfect (see Appendix III).

The last task was a spontaneous production test in which the subjects were required (i) to describe a series of actions the teacher performed (ii) to describe the pictures with the words given (see Appendix IV and V). These two kinds of tests were formerly employed by Smith (1979) and Van Baalen (1983) in order to elicit the learner's internalized/acquired knowledge of the language. We assume along with Smith and Van Baalen that improved spontaneous performance indicates a high level of automatization of the target language, and that the explicit knowledge which the subjects obtained during the course of instruction was transferred into implicit knowledge.

The test items in the spontaneous language production

task covered all the three structures: part (i) was related to the different use of the simple past tense and the present perfect; part (ii) examined the use of the passive construction. In the first four tasks, namely, error detection, error correction, sentence completion, reading comprehension, no time limit was set. But a time limit was imposed on the last task. When the teacher was performing the actions, the subjects were required to write down simultaneously the appropriate sentences. Altogether 15 minutes were set for the last task. So the learners had no time to monitor their performance. It was assumed that the action /picture description would elicit natural, acquired knowledge.

The achievement test was administered both as a pre-test and post-test, so that comparisons can be made to see whether there was any significant difference between the scores from the two tests.

All the test papers were scored by the investigator. Both binary and ternary scales were used in scoring. For example, in the error detection task, a binary scale was employed. If an error was discerned by the subject, 4 points would be given. If the subject failed to spot the error or took the right version for the wrong one, he received a 0. In error correction, a ternary scale was adopted. If a correct version was supplied, the subject received 4 points. But if the verb form was partly right, a score ranging from 1 - 3 was given. For example, given the following erroneous sentence:

All the cakes has ate by the guests.

If the subject changed the sentence to "all the cakes have been eaten by the guests", he received 4 points.

The correction "All the cakes have been eaten by the guests" would be scored 3 points.

2 points would be given to the answer "All the cakes have been ate by the guests."

The subject would receive 1 point if he corrected the sentence as "All the cakes has eaten by the guests."

The ternary scale was also used in the sentence completion and action/ picture description tasks. In the reading comprehension task, the binary scale was used. Any correct version of the test item received 4 points. The total score for the achievement test was 984 points (246 x 4).

The results from both pre-and post-tests were hand tabulated and numerically coded. They were then entered into a data file and were statistically analyzed using the Statistical Package for the Social Science (SPSS). T-tests and paired t-tests were utilized to determine if there was significant difference in the subjects' performance in the pre- and post-tests. The following section reports the results of the statistical analyses.

4. RESULTS OF STATISTICAL ANALYSES

This section presents the results of statistical analyses. As a measure of determining whether the two teaching methods produced significant results, t-test and paired t-test were performed. These tests measure and statistically compare the results of the pre- and post-tests from two dimensions: a) the learner's performance on the test items across the five learning tasks, b) their performance on the test items of the eleven grammatical properties. The following tables display the descriptive statistics. All the mean accuracy scores were reported in percentage.

4.1 Comparison of mean scores in pre-and post-tests for each group in terms of tasks

Paired t-tests were used to measure and compare statistically the results of the pre- and post-tests within each method to see if there is a significant gain on the post-test in each case. Table 5 shows the results of the statistical analysis for the IFI group with regard to the four tasks.

Table 5. Pre vs. Post Tests for the IFI Group with Regard to the Four Tasks.

	PRE-TEST			POST-TEST				
TASK	N	X	S	N	X	S	T	2-tail Prob.
ED	20	38.76	0.076	20	74.77	0.072	-15.34	* 0.000
EC	20	37.27	0.078	20	70.28	0.078	-13.33	* 0.000
SC	20	29.51	0.073	20	67.96	0.100	-13.88	* 0.000
CO	20	48.47	0.125	20	69.86	0.109	-5.87	* 0.000

Notes: ED = error detection, EC = error correction
SC = sentence completion CO = reading comprehension

As shown in Table 5, the figures for 2-tailed probability indicate that the IFI group made marked progress in terms of overall performance on test items across task types. There is significant difference in results between pre- and post- test scores at the .01 level.

Table 6. Pre vs. Post-tests for the EFI Group
with Regard to the Four Tasks

TASK	PRE-TEST			POST-TEST			T	2-tail Prob.
	N	\bar{X}	S	N	\bar{X}	S		
ED	20	36.59	0.080	20	80.47	0.081	-17.20	* 0.000
EC	20	35.67	0.080	20	77.71	0.098	-15.71	* 0.000
SC	20	28.08	0.087	20	77.27	0.105	-16.10	* 0.000
CO	20	44.58	0.187	20	84.31	0.107	- 8.27	* 0.000

Table 6 demonstrates that like the IFI group, the EFI group improved significantly across all task types over the instruction period, all figures for 2-tail probability show significance at the .01 level

4.2 Comparison of mean scores in the pre-and post-tests for each group in terms of the 11 syntactic properties

Table 7 and Table 8 show the subjects' performance on the test items across the 11 linguistic properties:

Table 7. Comparison of the Pre- and Post-tests for the IFI Group with Regard to the Properties

PROPERTY		PRE-TEST			POST-TEST			T	2-Tail Prob
		N	\bar{X}	S	N	\bar{X}	S		
PST	IR	20	46.48	0.165	20	81.92	0.110	-8.00	*0.000
	DS	20	57.75	0.177	20	60.87	0.230	-0.48	0.633
	AN	20	72.75	0.137	20	84.37	0.144	-2.73	*0.010
PP	EX	20	21.06	0.150	20	78.75	0.156	-11.92	*0.000
	RE	20	13.50	0.132	20	64.06	0.192	-9.70	*0.000
	PE	20	23.31	0.146	20	73.37	0.156	-10.46	*0.000
	DI	20	44.69	0.084	20	67.12	0.022	-7.78	*0.000
	SF	20	35.42	0.133	20	68.15	0.043	-6.30	*0.000
PAS	AG	20	20.62	0.093	20	75.87	0.109	-17.19	*0.000
	FC	20	0.94	0.042	20	67.50	0.337	-8.76	*0.000
	FO	20	18.12	0.118	20	78.06	0.068	-19.74	*0.000

Table 8. Comparison of the Pre- and Post-tests for the EFI Group with Regard to the Properties

		PRE-TEST			POST-TEST				
PROPERTY		N	\bar{X}	S	N	\bar{X}	S	T	2-tail Prob
PST	IR	20	47.08	0.145	20	87.00	0.109	-9.83	*0.000
	DS	20	59.12	0.112	20	77.56	0.178	-3.92	*0.000
	AN	20	71.25	0.114	20	90.25	0.099	-5.58	*0.000
PP	EX	20	25.31	0.142	20	79.75	0.185	-10.43	*0.000
	RE	20	13.50	0.110	20	68.25	0.042	-11.20	*0.000
	PE	20	22.50	0.133	20	77.69	0.185	-10.83	*0.000
	DI	20	46.87	0.065	20	77.37	0.136	-9.07	*0.000
	SF	20	35.58	0.023	20	71.87	0.238	-6.59	*0.000
PAS	AG	20	13.25	0.114	20	80.31	0.081	-22.12	*0.000
	FC	20	1.87	0.061	20	90.00	0.082	-38.49	*0.000
	FO	20	15.37	0.144	20	83.56	0.090	-17.97	*0.000

Notes: PST = the simple past tense
 IR = forms of irregular verbs
 DS = do-support for negative and interrogative construction
 AN = anaphoric use of the past tense
 PP = the present perfect
 EX = experiential perfect RE = perfect of result
 PE = perfect of persistent situation
 DI = difference between the simple past tense and the present perfect
 SF = distinction between since and for
 PAS = the passive construction
 AG = mapping of agent and patient to NP slots
 FO = morphological properties of the passive
 FC = focus function of the passive

As evident in Table 7 and Table 8, in respect to the 11 grammatical features, both methods led to significant progress in performance at the .01 level.

Through an analysis of paired t-tests, all of the pre- and post-test scores in the above four tables were found to be significantly different at the .01 level. This finding suggests that each method in itself (IFI, EFI) provided the students a chance to improve considerably on

language proficiency in this four-week program, lending support to the argument that formal instruction in general is conducive to SLA, be it implicit or explicit.

In order to see which method is more effective in accelerating the rate of SLA, t-tests were performed to compare the mean accuracy scores of the two groups in the pre- and post tests. The data was first analysed to obtain the overall achievement scores.

Table 9. Comparison of the Overall Achievement Scores of the Two Groups in the Pre- and Post-tests

	EFI GROUP			IFI GROUP			T	2-tail Prob
	N	\bar{X}	S	N	\bar{X}	S		
PRE-TEST	20	33.73	0.065	20	34.93	0.055	-0.63	0.543
POST-TEST	20	79.09	0.091	20	71.67	0.078	2.78	* 0.009

Table 9 demonstrates that in the pre-test there is no significant difference between the two groups, while in the post-test, the two groups differ significantly at the .01 level.

4.4 Comparison of the mean scores of the two groups in the pre- and post- tests in terms of tasks

The mean accuracy scores of the two groups were also compared across task types, the following two tables show the results of the statistical analysis in the pre- and post-tests:

Table 10. Comparison of the Pre-tests Results in Terms of Tasks

TASK	EFI GROUP			IFI GROUP			T	2-tail Prob.
	N	X	S	N	X	S		
ED	20	36.56	0.080	20	38.76	0.076	-0.88	0.385
EC	20	35.67	0.080	20	37.27	0.078	-0.64	0.529
SC	20	28.08	0.087	20	29.51	0.073	-0.56	0.576
CO	20	44.58	0.187	20	48.47	0.125	-0.70	0.444

Table 11. Comparison of the Post-test Results
in Terms of Tasks

TASK	EFI GROUP			IFI GROUP			T	2-tail Prob.
	N	\bar{X}	S	N	\bar{X}	S		
ED	20	84.41	0.018	20	78.36	0.076	2.43	* 0.020
EC	20	81.33	0.090	20	73.60	0.081	2.87	* 0.007
SC	20	80.16	0.088	20	70.14	0.110	3.18	* 0.003
CO	20	84.31	0.107	20	69.86	0.109	4.24	* 0.000

It is observable that in the pre-test, there was no significant difference between the two groups of scores, while significant difference can be discerned across all the task types in the post-test, showing that the EFI group did conspicuously better than the IFI group in carrying out various learning tasks. We may venture to conclude that the explicit instruction is more effective than the implicit instruction in speeding up the learning rate. However, this conclusion turned out to be premature -- when we compared the mean scores of the two groups across the grammatical properties, a different picture emerges.

4.5 Comparison of mean scores of the two groups in the pre- and post-tests in terms of the eleven syntactic properties

Table 12 demonstrates the subjects' performance on the test items across the 11 properties in the pre-test. It can be seen that in the pre-test, generally no significant difference was found between the two groups. The subjects had the low score on the passive construction, but a significant difference was found between them vis-a-vis the property of "AG" ($p < .05$): the IFI group performed better than the EFI group with regard to the mapping of the agent and patient to NP slots. It should also be noted that a near significant difference between the two groups was found for the property of "FC" with the EFI group performing better in respect to the foregrounding or focus function of the passive.

Table 12. Comparison of the Pre-test Results
in Terms of Properties

		EFI GROUP			IFI GROUP				
PROPERTY		N	\bar{X}	S	N	\bar{X}	S	T	2-tail Prob.
PST	IR	20	47.08	0.145	20	46.48	0.165	0.12	0.903
	DS	20	59.12	0.112	20	57.75	0.177	0.29	0.771
	AN	20	71.37	0.114	20	72.25	0.137	-0.22	0.827
PP	EX	20	25.31	0.032	20	21.06	0.150	0.92	0.362
	RE	20	13.50	0.110	20	13.50	0.132	0.00	1.000
	PE	20	22.50	0.133	20	23.31	0.146	-0.18	0.855
	DI	20	46.87	0.065	20	44.69	0.084	0.92	0.362
	SF	20	35.58	0.105	20	35.42	0.137	-0.48	0.631
PAS	AG	20	13.25	0.114	20	20.62	0.093	-1.24	*0.031
	FO	20	15.37	0.144	20	18.12	0.026	-0.66	0.512
	FC	20	1.87	0.094	20	0.94	0.042	0.57	0.071

Two observations can be made based on Table 13. Firstly, there is a clear statistical difference between the two groups in the passive construction. A significant difference can be discerned in all the three properties of the passive construction. The EFI group did conspicuously better than the IFI group in the use of the foregrounding function of the passive (FC $p = 0.009$, raw score: 90/67%). In the other two properties, namely, the mapping of the agent and patient to the NP slots (AG) and the morphological properties of the passive (FO), significant differences at the level of .05 are found. Secondly, the two groups showed no clear statistical difference on the acquisition of tense and aspect. Among the eight properties relating to tense and aspect, only two (do support and difference between the simple past tense and present perfect) reached the level of significance. From the data available, we may claim that explicit instruction is more effective than the implicit instruction in teaching the passive construction. The former is not superior to the latter as far as tense and aspect are concerned.

Table 13. Comparison of the Post-test Results
in Terms of Properties

		EFI GROUP			IFI GROUP				
PROPERTY		N	X	S	N	X	S	T	2-tail Prob.
PST	IR	20	87.00	0.109	20	81.92	0.110	1.46	0.151
	DS	20	77.56	0.178	20	60.87	0.230	2.57	*0.015
	AN	20	90.25	0.098	20	84.37	0.144	1.50	0.142
PP	EX	20	79.75	0.185	20	78.75	0.156	0.18	0.855
	RE	20	68.25	0.189	20	64.06	0.192	0.69	0.491
	PE	20	77.69	0.185	20	73.37	0.156	0.80	0.431
	DI	20	77.37	0.136	20	67.12	0.098	2.74	*0.010
	SF	20	71.87	0.238	20	68.15	0.190	0.55	0.587
PAS	AG	20	82.31	0.081	20	75.87	0.109	2.12	*0.042
	FO	20	83.56	0.090	20	78.06	0.068	2.18	*0.036
	FC	20	90.00	0.082	20	67.50	0.337	2.90	*0.009

Table 14 exhibits the results of the spontaneous production test designed to examine the interface position.

Table 14. Comparison of Mean Scores of the Two Groups
in Spontaneous Language Production in the Post-test

		EFI GROUP			IFI GROUP				
SPONTANEOUS PRODUCTION		N	X	S	N	X	S	T	2-tail Prob.
		20	87.29	0.112	20	71.57	0.215	2.87	*0.008

This table reflects that the EFI group did significantly better than the IFI group in both action and picture description tasks, suggesting that there is an interface between the explicit and implicit knowledge.

In order to find further evidence in support of the above findings, the individual gain scores and then the gain scores of the two groups were computed and compared in terms of tasks and properties as well. The following tables show the results:

Table 15. Comparison of the Gain Scores of the Two Groups in Terms of Tasks

TASK	EFI GROUP			IFI GROUP			T	2-tail Prob	
	N	X	S	N	X	S			
ED	20	43.88	9.52	20	36.01	8.07	2.05	*	0.048
EC	20	42.04	10.08	20	33.01	8.19	2.32	*	0.026
SC	20	49.19	3.96	20	38.45	4.77	2.47	*	0.018
CO	20	39.73	10.96	20	21.39	8.49	3.67	*	0.001

Table 15 demonstrates that the difference in favour of the EFI group is significant at the .05 (ED, EC, SC) and .01 (CO) level.

Table 16. Comparison of the Gain Scores of the Two Groups in Terms of Properties

Property		EFI GROUP			IFI GROUP			T	2-tail Prob.
		N	X	S	N	X	S		
PST	IR	20	39.92	12.41	20	35.44	12.15	0.99	0.328
	DS	20	18.44	14.39	20	3.12	15.63	1.78	0.083
	AN	20	19.00	11.41	20	11.62	13.55	0.38	0.707
PP	EX	20	54.44	21.75	20	57.69	20.43	-0.26	0.795
	RE	20	54.75	17.59	20	50.56	14.91	-0.13	0.900
	PE	20	55.19	16.35	20	50.06	19.32	0.89	0.378
	DI	20	30.50	12.39	20	22.43	11.30	1.64	0.109
	SF	20	36.29	13.30	20	32.73	17.25	1.11	0.275
PAS	AG	20	67.06	9.33	20	55.25	11.38	3.34	*0.002
	FO	20	88.13	11.21	20	66.56	9.56	2.00	0.053
	FC	20	68.19	1.518	20	59.94	5.42	3.39	*0.003

As is clear from table 16, no significant difference was found in the properties related to tense and aspect. But in the passive construction, a significant difference was found on the items related to the mapping of semantic roles to NP position (AG, $p < .01$) and the foregrounding of

the passive (FC, $p < .01$). A near significant difference at the .05 level can also be seen with respect to the morphological properties of the passive (FO).

It is interesting that the result from the comparison of the gain scores of the two group is identical to that of the comparison of the post-test scores of the two groups. The EFI group performed significantly better than the IFI group across task types. But with regard to the grammatical properties, the former did not outperform the latter, except on the passive construction.

The results of the study can be summarized as follows:

- i) Positive findings have been obtained which show that form-based classroom instruction is conducive to the success of SLA. Through three weeks of instruction, the learners in both groups made significant progress in the acquisition of the three grammatical structures. The comparison of the pre- and post-tests scores within groups has provided evidence to support the first hypothesis that formal instruction in general has positive effects on SLA.
- ii) The second hypothesis is only partially confirmed by the statistical analyses. The available data have indicated that explicit formal instruction is more effective than implicit formal instruction in accelerating the rate of the learners' acquisition of the passive construction. However, this is not true of the subjects' acquisition of tense and aspect. As far as tense and aspect are concerned, explicit instruction is not superior to implicit instruction.
- iii) The result of the spontaneous production test appears to be in favour of the interface position. The EFI group did significantly better than the IFI group, suggesting that explicit knowledge can be converted into implicit knowledge through practice.

5. DISCUSSION

The findings from this study indicate that formal instruction in general is conducive to the success of SLA. The scores obtained from the pre- and post-tests within each group have provided ample evidence to support the first hypothesis.

a) Marked Improvement on Test Items Across Task Types and Properties in Both Groups

As reflected in Tables 5 to 8, there was substantial overall progress in each group as a result of experimental lessons. Both EFI and IFI functioned well and led to significant differences at the .01 level both across task types and properties. Taking the scores of the properties as a starting point, it can be observed that the initial scores of the present perfect and the passive construction were very low, ranging from 0.94% to 46.87' (cf. Table

12). However, after the experimental treatment, all the scores exceeded 64% (cf. Table 13). The lowest group gain score was 3.12% which appeared in the IFI group on the test items relating to the property of the do-support for negative and interrogative construction (cf. Table 16, DS). The highest gain score reached 88.13% which was obtained by the EFI group on the focus function of the passive (cf. Table 16, FO). Although the initial scores of the simple past tense were already relatively high, ranging from 46.48% to 72.75%, noticeable progress can still be observed. Tables 7 and 8 show that both groups improved appreciably on the properties of the irregular past tense morphology (IR) and the anaphoric use of the past tense (AN). Figures 3 and 4 demonstrate respectively the overall improvement of the IFI and EFI groups on the acquisition of the 11 grammatical properties:

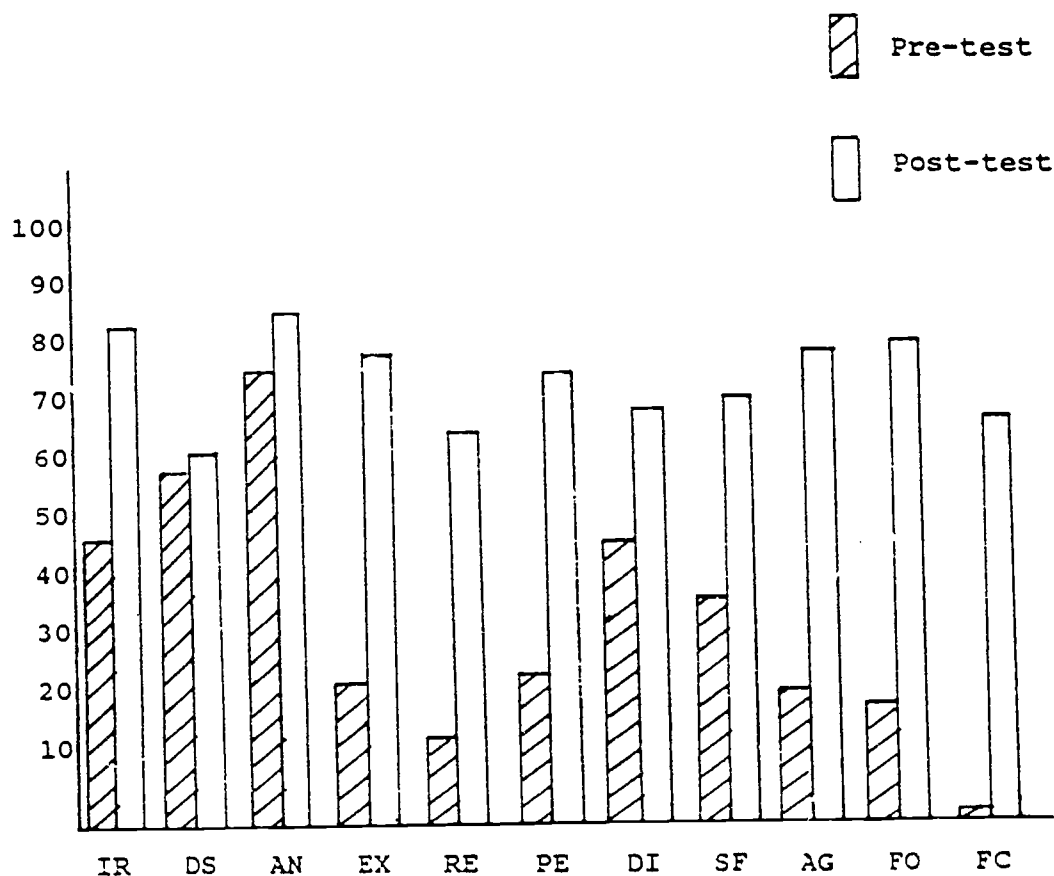


Figure 3. Overall Improvement of the IFI Group on the Acquisition of 11 Properties

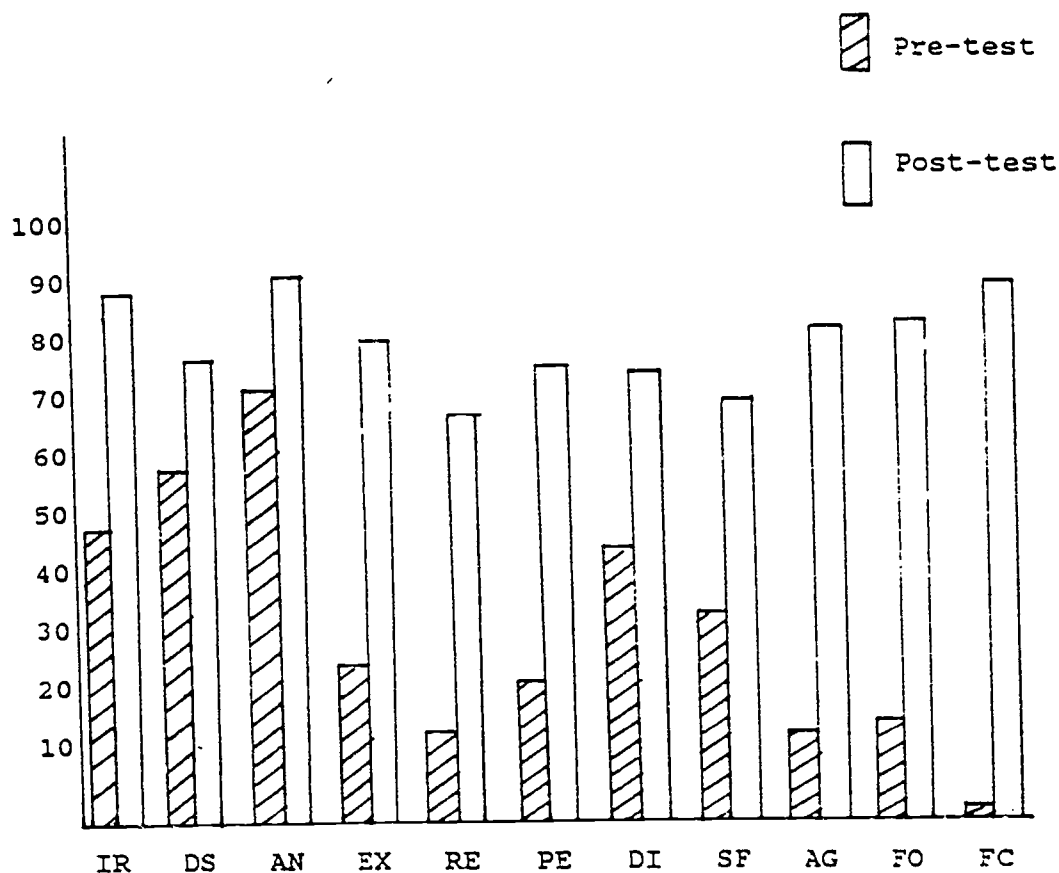


Figure 4. Overall Improvement of the EFI Group on the Acquisition of the 11 Properties

The evidence indicates that focusing learners' attention on the formal characteristics of grammatical features facilitates the rate/success of SLA. As was stated in section 3.1, the subjects in this study did not have any target language exposure outside the classroom. Therefore, the conspicuous improvement the subjects made can only be related to the amount of formal instruction they received in the classroom. Thus the proposal that form-based classroom teaching of specific linguistic properties and structures contributes to the acquisition of L2 learners has been confirmed by the findings from the present study.

b) Evidence for the Internalization of Grammatical Knowledge

It must be emphasized that the learners' post-test performance is not simply an indication of their familiarity with the test items. Rather, there is substantial evidence showing that they have internalized the linguistic properties and structures.

From the description of the task types in section 3.4 and the test papers in appendix I to V, we can see that most grammatical items in the achievement test were contextualized, involving the meaningful use of the target language. For example, in the sentence completion task, the subjects were required to finish the dialogue using non-verbal cues (cf. "Tom's diary" in Appendix I). In the same task, the subjects were asked to complete a passage with information given in the chart (cf. Appendix II). In the reading comprehension task, the learners were provided with several dialogues and their understanding of the temporal and aspectual properties would be a prerequisite to the correct inference (cf. Appendix III). The picture/action description task elicited the subjects' spontaneous use of the learnt structures (cf. Appendix IV, V). These tasks by and large examined the learners' internalized/acquired knowledge of the target language. The gain scores of the two groups and the significant difference between the pre- and post-test results reflected that after three weeks' instruction, the subjects had acquired to some degree some of the properties of the selected grammatical structures.

Hypothesis 2 states that explicit formal instruction is more effective than implicit formal instruction in accelerating the rate of SLA. Results indicate that the EFI group outperformed the IFI group in the five tasks. However, so far as the grammatical properties are concerned, this hypothesis is only partially confirmed. (cf. Tables 13, 16). Comparisons of the post-test scores given in Table 13 reveal that the EFI group excelled on the five properties, namely, Do-support in the negative and interrogative sentences (DS), difference between the simple past tense and the present perfect (DI), mapping of agent and patient to NP slots (AG), morphological properties of the passive, (FO) and the foregrounding/focus function of the passive (FC). Comparisons of the gain scores of the two groups given in Table 16 demonstrate that the EFI group did significantly better only with respect to AG and FC, and marginally FO. With regard to the acquisition of the other properties, the relative effectiveness of the two methods was about the same. The results raise an interesting and important question: why is explicit formal instruction useful in some syntactic areas, but not others?

a) Morphological Complexity of Tense Marking in English

In English, tense marking is morphologically complex, because it is not always suffixed to the verb stem. Sometimes it is suffixed to modals; at other times, it appears on aspectual elements or dummy DO:

e.g.: I could not go.

He had gone before I arrived.

I did not see him.

The regularities of tense marking in English can be⁹² summarized as follows:

i) In an affirmative, declarative sentence, tense marking appears on the first verbal element of the clause, whatever that is. It can be a main verb or an auxiliary verb:

e.g.: John left the classroom (main verb is inflected).
John could draw well when he was only five.
(inflection on the modal auxiliary)
John had turned off the light before he went to bed.
(inflection on the aspectual element)

ii) In negative and interrogative sentences, tense marking appears on the first auxiliary element if there is one (including modal and aspectual morphemes). If there is no auxiliary element, tense marking appears on a dummy DO:

e.g.: John was not singing.
Was John singing?
John did not pass the mid-term examination.
Did John pass the mid-term examination?

The variable positioning of the tense marker may present a serious problem for learners whose first language is Chinese, a language generally considered to be morphologically impoverished.

b) Lexical Idiosyncrasy of Irregular Morphology

Another aspect of past tense morphology that poses problems for learners is the existence of irregular past tense forms. Irregular verbs, unlike regular ones, are not inflected with the -ed morpheme. Although some patterns can be found in how the past tense of irregular verbs is formed, which verbs take irregular tense morphology is entirely idiosyncratic. The learner has to identify the verbs that take on irregular morphology and this is no easy task. Past tense marking is morphologically complex, but is governed by regularities such as the conditions for the tense marking of dummy DO. Given the poor language environment, it would be difficult for the Chinese learners to induce such complex rules on their own from limited amounts of exposure. It is in this context that explicit instruction may be useful. In the EFI group, the abovementioned regularities were explicitly explained to the learners who may benefit from clear statement of the regularities on the part of the teacher. Our results indeed suggest that the EFI group benefited from the explicit statement of the tense marking regularities (cf. Table 13, 16).

c) Semantic Complexity of the Present Perfect

Results from this study reveal that there was no significant difference between the two groups with respect to the acquisition of the five properties of the present perfect (cf. Tables 13, 16).⁹³ A possible explanation for

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this finding is that the concept of aspect is semantically complex and abstract. On one hand, the present perfect, bears the core meaning of current relevance of a prior event; on the other hand, it carries shades of peripheral meanings (cf. Figure 1 "types of the present perfect, Comrie 1976, 1985). In our study, besides the core meaning of the present relevance, we explained to the EFI group the peripheral meanings. However, as indicated in Tables 13 and 15, the EFI group did not surpass the IFI group, in respect to their performance on these properties, suggesting that the explicit explanation of the peripheral meanings of the present perfect did not accelerate the acquisition rate.

The second noticeable point is that with limited exposure to the norms governing the use of the present perfect in English, it is difficult for the Chinese learner to derive the core meaning of the present relevance by implicit instruction alone. The expression of the current relevance is very subjective and abstract. Without explicit explanation of such meaning, the learners' will find it extremely difficult to correctly distinguish between the past tense and the present perfect. This claim is confirmed by the low score of the IFI group in the post-test (cf. Table 13, DI: 67.12%). What should also be mentioned is that although the EFI group performed significantly better than the IFI group in the post test, the comparison of the gain scores between the two groups did not show any significant difference, lending further support to the idea that the core meaning of the present perfect is one of the evasive areas for Chinese learners.

d) Explicit Instruction Accelerates the Acquisition of the Passive Construction

In this study, the EFI group had outstanding performance on the passive construction. Significant differences can be discerned in all the three properties of the passive construction, either in the comparison of the post-test scores or the gain scores (cf. Tables: 13, 16). A possible explanation is that the selected properties of the passive construction are less complex than tense and aspect in respect to their structures and meanings.

i) Mapping of semantic roles to NP slots

This property only involves a syntactic operation, that is, the interchange of the subject and object noun phrases. An explicit statement of the mapping of the agent and patient to different NP slots greatly facilitates its acquisition. Notice that in the pre-test, the IFI group outperformed the EFI group ($P = 0.031$). However, after the experimental treatment, the EFI group did significantly better than the IFI group (cf. Tables: 13, 16).

ii) Passive morphology is simpler than past tense morphology:

The following schema shows that the passive morpheme, unlike that of the past tense, is attached to a fixed position. The passive, be is always located between the auxiliary and the verb, and the passive en always appears suffixed to the verb.

NP ₁	AUX	V	NP ₂
NP ₂	AUX	be	V+en by NP ₁

In our experimental lesson, the position of the passive morpheme, as well as two common errors related to passive morphology: subject/verb concord and insertion of dummy do, were directly explained to the EFI group. The results of the spontaneous production task (a picture description task) reveal that the subjects in the EFI group had performed significantly better than the IFI group, suggesting they had internalized the morphological rules involved in passive formation.

iii) The foregrounding function of the english passive

In English, the passive construction is used when one wants to foreground or draw attention to the result or the patient. This has to do with the fact that the subject position is considered to be a salient position in the sentence. The subject of the passive structure, where the patient NP is located, is therefore highlighted or emphasized in some sense (cf. Keenan, 1985).

In the Chinese classroom, the foregrounding or focus function of the passive is seldom explained to the learner. The common practice in the teaching of the passive structure is sentence transformation. The learners are asked to convert active sentences into passive ones, or vice versa. The consequence is that the learners do not know when to use the passive structure. Again given a relatively impoverished learning environment, it is difficult for the learners to induce this function from teachers' use of passive structures by mere exposure. Given this context, it seems plausible that explicit description of the foregrounding function of the passive will facilitate its acquisition. In our experiment, the explicit explanation of this property to the EFI group proved to be an aid to the learners. The results of the picture description test indicate that the EFI group did markedly better than the IFI group.

Findings from this study appear to be in favour of the interface position. The action/picture description task of this study, which required an internalized knowledge of the three selected structures allows us to examine the interface position on a small scale. Results of the learners' performance on this task reveal that the EFI group significantly outperformed the IFI group in spontaneous language production, lending support to the possibility of transfer of explicit grammatical knowledge into the learners' competence. Krashen's theory seems

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incapable of handling the superiority of the EFI group over the IFI group.

6. CONCLUSIONS

In this study, we examined the absolute effect of formal instruction on the acquisition of the three grammatical structures by the Chinese adolescent learners of English. The overall results seem to support the general conclusion that form-based classroom instruction facilitates SLA. However, our findings do not suggest that explicit instruction is always a better means to accelerate the rate of acquisition. Rather they indicate that explicit instruction is more effective in teaching the less complex properties and structures such as the mapping of agent and patient to NP slots and the morphological properties of the passive construction. In respect to the more complex properties as the semantic meanings of the present perfect, explicit instruction did not show any superiority over implicit instruction. This finding is compatible with that of Van Baalen (1983).⁸ A tentative conclusion can be drawn that explicit instruction is effective with simple rules but not so with complex ones. Results from this study appear to be in favour of the interface position, but because of the small size of the sample and limited number of test items, no conclusion can yet be drawn. More empirical studies are necessary to explore why explicit knowledge can be transferred into implicit knowledge and which method is most effective to accelerate this transference. This might be a profitable line for future enquiry.

Notes

1) This article is based on a portion of the author's M.Phil. thesis prepared under the supervision of Dr. Thomas Lee at the Chinese University of Hong Kong. I wish to thank Professor William Rutherford and Rod Ellis for their helpful comments on an earlier version of this paper presented at the International Conference on Syntactic Acquisition, CUHK, 1989. Special thanks are due also to Ms. Lao Zhi-xiu of Beihai Middle School and her lovely students who made this project possible. I am indebted to the Lingnan Foundation, the United Board of High Christian Education in Asia and the Weixin Group of Hong Kong for financial support, without which the study would not have been successfully completed.

2) The average academic score was obtained on the basis of two scores: the score on the mid-term examination and the average score of a series of quizzes held in their regular English course.

3) Because of the communication gap between the investigator and the teacher of English in Beihai middle school, the past tense had been taught before the experiment. But based on the mean scores of each group in the pre-test, we may claim that before the experiment, the subjects had not acquired the selected grammatical properties. Note the pre-test mean scores given in the following figure for the three areas under investigation:

the past tense		the present perfect		the passive construction	
EFI	IFI	EFI	IFI	EFI	IFI
X 58.59	59.65	29.36	28.83	33.73	34.93
(percentile)					

4) No significant difference was found in the IFI group on the property of DS ($P=.633$). However, there were significant differences for the other 10 properties and for the task types as well ($P < .01$).

5) The achievement score was obtained by averaging the scores of the five learning tasks, that is, error detection, error correction, sentence completion, reading comprehension and spontaneous language production.

6) A significant difference was found in the post-test in respect to the property of the difference between the simple past and the present perfect (DI). However, the comparison of the gain scores of the two groups did not show any significant difference ($p=.109$).

7) Adverbs are excluded from the discussion here.

8) In Van Baalen's study, it was found that the pupils who received explicit instruction equal those pupils who were exposed to more implicit procedures in the case of more complex structures (do-support and -ing form), while with less complex structures (SVO-order and 3rd person -s), the explicit group outperformed the implicit group.

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Appendix I. Sample of Sentence-Completion Task A

This is Tom's diary. Answer the questions with the information you get from the diary.

(下面那段材料是汤姆的日记, 根据日记内容回答问题)

Monday, 9.00	meet Mr. Ford at the Guest House, (宾馆)
11.00	fly to Beijing,
Tuesday,	not feel well, catch cold, stay at the hotel,
Wednesday morning,	visit Qinghua University, interview some students and teachers,
afternoon,	Write a report, send it back to Xinmin Evening Newspaper (新民晚报) by telex, (电传)
evening,	phone Sam Jones, invite him to the concert,
Thursday,	leave Beijing, go to Chang chun by train,
Friday,	visit Jilin University, meet some friends,

Questions: 1, When did Tom fly to Beijing?

He _____.

2, Did he do anything on Tuesday? Why?

_____.

3, What did he do on Wednesday?

He _____.

4, Did he invite Sam to visit the friends?

_____.

5, Did he leave Beijing during the weekend?

_____.

(Complete answers are required)

请用完整句子回答

Appendix II. Sample of Sentence-Completion Task B

Look at the chart below and fill in the blanks according to the information you get from the chart.

(看下面的图表, 根据图表内容填空)

Beijing is in the north of China. It often snows in winter. The following chart is the record of the weather forecast.

Monday:	cloudy
Tuesday:	rain and snow
Wednesday:	snow
Thursday:	heavy snow
Friday:	rain and snow
Saturday:	snow

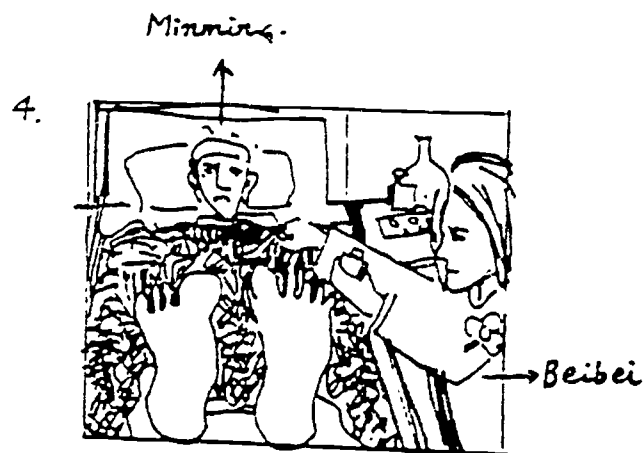
It is Sunday today. Xiao Fang is at home. She _____ (stay) at home since _____, because it began to snow that day. She telephoned Li Hua early in the morning. Li Hua said, "I will come before 10 o'clock." So Xiao Fang began to wait for her. It is three o'clock in the afternoon, but Li Hua is still not here. Xiao Fang _____ (wait) for Li Hua for _____.

Appendix III. Sample of Picture-Description Task

a, Look at the pictures and fill in the blanks according to the information you get from each picture.

(看下面的图画, 根据图画里的内容填空)

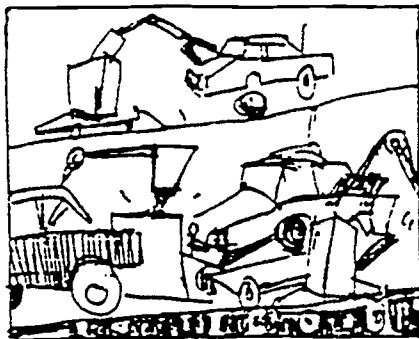
- 1, _____ have been caught by _____.
- 2, _____ has been found by _____ at last.
- 3, _____ was invited by _____ to go the concert.
- 4, _____ was taken care of by _____.



b, Make up a sentence to describe what is happening in each picture, using the word given.

(用所给的词造句,说明图画里的内容。
每个词造一句句子。)

1,



make,

2,



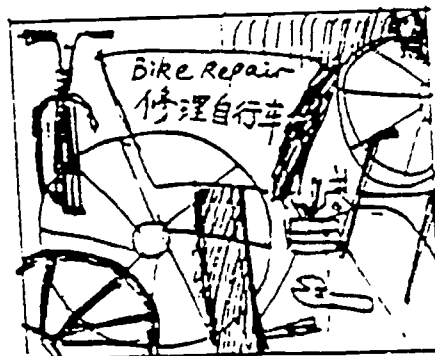
sell

3,



hit

4,



repair

Appendix IV. Sample of Reading Comprehension Task

Read the following English and Chinese sentences. Indicate which Chinese sentence gives the correct inference of the English sentence.

(读下面的中英文句子, 指出哪句中文句子最正确地表达了英文句子的意思.)

1, Jane: Have you received any letter from John?

Bob: No. But he has come to Shanghai.

- a, 约翰现在在上海。
- b, 约翰现在不在上海。
- c, 约翰现在是否在上海不清楚。

2, Jane: Have you received any letter from John?

Bob: No. But he came to Shanghai the other day.

- a, 约翰现在在上海。
- b, 约翰现在不在上海。
- c, 约翰现在是否在上海不清楚。

3, Dr. Guan is watching the football match on TV. His student is talking to him.

student: Dr. Guan, you like to play football, don't you?

Dr. Guan: Yes, indeed. I watch football match on TV every weekend. I played football when I was young.

- a, 关博士现在还踢足球。
- b, 关博士年轻时踢足球, 现在不踢了。
- c, 关博士现在还踢不踢足球不清楚。

Appendix V. Sample of Action Description Task

Look at the teacher's performance and use the following words to describe the series of actions that the teacher carries out. Pay attention to the tense you use.

(看老师的动作，用下面的词和词组描述老师所做的一系列动作。)

- 1, show, put on, take off, give,
- 2, take out, open, take out, close,
- 3, put on, take off, put on, go out,
- 4, hide, take out, read, throw,
- 5, fall down, sit on, stand up with pain, go out,

The action description task was based on Carlota S. Smith's (1979) experiment on the L1 acquisition of tense and aspect in which the subjects were asked to describe actions performed by the experimenter. It was assumed that action description elicited acquired knowledge of the language. The following section illustrates a series of actions performed by the investigator of the present study:

The investigator put on a white coat, took it off, put on a red coat and then went out.

The following description will count as a correct answer: "The teacher put on a white coat. She took it off. She put on a red coat. She has gone out." The first three sentences should not have current relevance and should have the simple past tense; while the last sentence should appear in the present perfect.